

Appl. No. 10/666,010
Amtd. dated Aug. 19, 2005
Reply to Office Action of May 19, 2005

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A plasma display panel comprising:

a panel unit containing a large number of discharge cells;

a heat sink unit which includes a substrate and a plurality of fins extending from the substrate, the substrate of the heat sink unit being bonded along a back substrate of the panel unit for dissipating heat generated by the panel unit; and

a thermal interface interposed between the back substrate of the panel unit and the substrate of the heat sink unit for connecting the panel unit and the heat sink unit;

wherein the substrate of the heat sink unit is formed of an anisotropic material for transferring the heat from the panel unit directly through the heat sink unit substrate to the fins of the heat sink unit, and the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit.

Claim 2 (canceled)

Claim 3 (currently amended): The plasma display panel as claimed in claim 1,

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wherein the a heat conduction axis of the heat sink substrate material is parallel to the a direction of extension of the fins.

Claim 4 (canceled)

Claim 5 (currently amended): The plasma display panel as claimed in claim 1, wherein the thermal interface is about 0.1 mm thickness thick.

Claim 6 (original): The plasma display panel as claimed in claim 1, wherein the fins are made of aluminum material.

Claim 7 (currently amended): A plasma display panel comprising:

a panel unit containing a large number of discharge cells;

a heat sink unit which includes a substrate, the substrate of the heat sink unit being bonded along a back substrate of the panel unit for dissipating heat generated by the panel unit; and

a thermal interface interposed between [a] the back substrate of the panel unit and the substrate of the heat sink unit for thermally connecting the panel unit and the heat sink unit; wherein

the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the panel unit and the heat sink unit.

Claim 8 (currently amended): The plasma display panel as claimed in claim 7, wherein said the heat sink unit further includes a plurality of fins extending from the substrate.

Claims 9 (original): The plasma display panel as claimed in claim 8, wherein

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said fins extend perpendicular to said surfaces of the thermal interface.

Claim 10 (currently amended): A method of making a plasma display panel, comprising steps of:

providing a panel unit containing a large number of discharge cells;

providing a heat sink unit which includes a substrate and a plurality of fins extending from the substrate, the substrate of the heat sink unit being bonded along a back substrate of the panel unit for dissipating heat generated by the panel unit; and

filling a space between the back substrate of the panel unit and the substrate of the heat sink unit with a thermal interface for thermal connection therebetween; wherein

at least one of the substrate of the heat sink unit and the thermal interface is provided with an anisotropic character for efficiently transferring the heat from the panel unit through the heat sink unit substrate to the fins of the heat sink unit in a specific one single direction, and the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit.

Claim 11 (currently amended): The method as claimed in claim 10, wherein said the fins extend perpendicular to said the substrate of the heat sink unit.

Claim 12 (currently amended): The method as claimed in claim 11, wherein said specific one single direction is perpendicular to said the substrate of the heat sink.